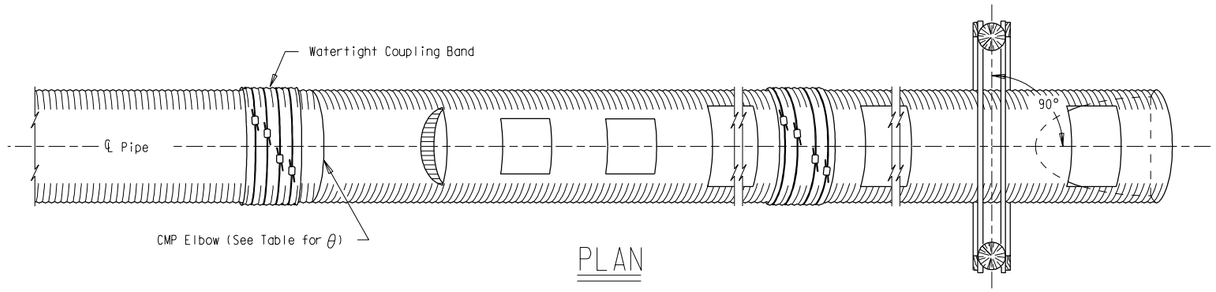
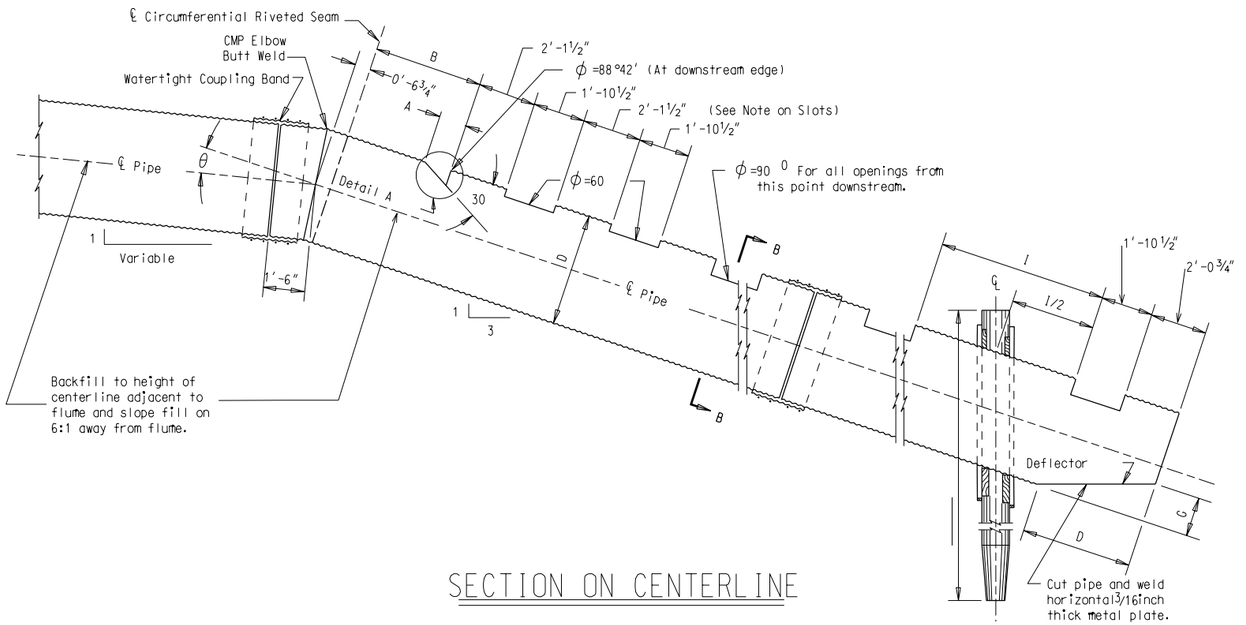
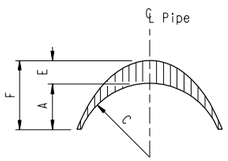


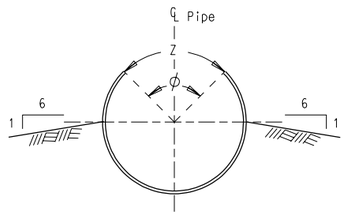
PLAN



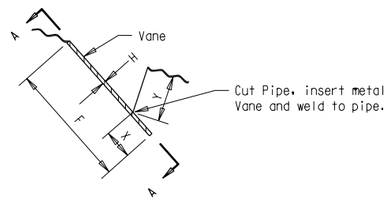
SECTION ON CENTERLINE



SECTION A-A



SECTION B-B



DETAIL A

SLOTTED FLUME DIMENSIONS (ft.-inches)								
PIPE DIAMETER	15"	18"	21"	24"	30"	36"	42"	48"
A	0-3 3/4	0-4 1/2	0-5 1/4	0-6	0-7 1/2	0-9	0-10 1/2	1-0
B	1-11 1/4	1-11 1/4	1-11 1/4	1-11 1/4	3-11 1/4	3-11 1/4	3-11 1/4	3-11 1/4
C	0-6	0-7 1/4	0-8 3/8	0-9 5/8	1-0	1-2 3/8	1-4 3/4	1-7 1/4
D	1-3	1-6	1-9	2-0	2-6	3-0	3-6	4-0
E	0-1 7/8	0-2 1/4	0-2 5/8	0-3	0-3 3/4	0-4 1/2	0-5 1/4	0-6
F	0-5 5/8	0-6 3/4	0-7 7/8	0-9	0-11 1/4	1-1 1/2	1-3 3/4	1-6
G	0-5	0-6	0-7	0-8	0-10	1-0	1-2	1-4
H	0-0 1/8	0-0 1/8	0-0 1/8	0-0 1/8	0-0 1/8	0-0 1/8	0-0 3/16	0-0 3/16
I	2-1 1/2	2-1 1/2	2-1 1/2	2-1 1/2	2-1 1/2	2-1 1/2	6-1 1/2	6-1 1/2
X	0-1 1/4	0-1 1/2	0-1 3/4	0-2 1/8	0-2 5/8	0-3 1/8	0-3 5/8	0-4 1/8
Y	0-2 1/8	0-2 5/8	0-3	0-3 1/2	0-4 3/8	0-5 1/4	0-6	0-6 7/8
Z(ϕ =60°)	0-7 7/8	0-9 3/8	0-11	1-0 5/8	1-3 3/4	1-6 7/8	1-10	2-1 1/8
Z(ϕ =88°42')	0-11 5/8	1-1 7/8	1-4 1/4	1-6 5/8	1-11 1/4	2-3 7/8	2-8 1/2	3-1 1/8
Z(ϕ =90°)	0-11 3/4	1-2 1/8	1-4 1/2	1-6 7/8	1-11 5/8	2-4 1/4	2-9	3-1 3/4
θ 1/								

θ - Must be completed and entered into table.

NOTES:

Corrugated metal pipe shall be Type I , Shape 1 conforming to Construction Specification 51. Corrugated metal pipe, NRCS National Engineering Handbook, Part 642, Specifications for Construction Contracts.Fabricated metal plates shall be of compatible material.

All coupling bands upstream of the elbow shall be watertight and shall be 2 feet wide annular corrugated bands with 12 inch wide neoprene gasket and four rods and tank lugs.

Neoprene gaskets shall be 3/8inch thick, have an unstretched diameter 10 percent less than the nominal pipe size and shall comply with ASTM D-1056, Grade SCE-43.

All slots shall be spaced similarly downstream with ends of pipe sections fabricated as shown. All slots shall measure 1'-10 1/2" longitudinally along the pipe. Where riveted pipe is used, the slots shall be cut from the single thickness leaving the lapped area undisturbed.

STANDARDIZED DESIGN:

Adapted from "Tests of a Slotted-Flume Outlet" by Phillips and Jacobson, Transactions of the ASAE, vol. 9, no. 3, pp. 433 thru 436, 1966, and standard drawings by NRCS, Des Moines, Iowa. Revision of Std. Drawing SNTC-11 dated 12/86. Must be adapted to specific site. Refer to instructions for Use and Design Assumptions. A Folder containing design notes and computations is available at NRCS, P O Box 141510, Gainesville, FL 32614-1510.

Instructions for Use:

Applications should be restricted to the range of model studies performed by the Institute of Hydraulic Research, State University of Iowa, as discussed in the Transactions of the ASAE paper, "Tests of a Slotted-Flume Outlet", by Phillips and Jacobson, 1966.

Length of piling must be determined based on site conditions and construction methods.

Sites with unstable outlets should be closely monitored to avoid loss of earth support to the CMP upstream of the Outlet Support.

Design Assumptions:

Maximum discharge is based on 25 feet of head acting on 100 feet of CMP.

Total loading for Outlet Support is based on 12 linear feet of CMP and water from maximum discharge above including impact force on deflector. Loadings used were 965, 1425, 1875, 2550, 4190, 6260, 9220, and 13210 lbs. for 15 through 48 inch pipes respectively.

Date
Designed
Drawn
Checked
Approved

NRCS
NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

SLOTTED FLUME OUTLET		
STANDARD DWG. NO.	FL-410A1	
DATE 12/02	SHEET	OF

REVISIONS		
DATE	APPROVED	TITLE

File No.
Drawing No.
Sheet of